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ABSTRACT

"Reciprocity," a social simulation game based on exchange theory, was developed by the author to study the dynamics of power relationships in the context of marriage and the family. The simulation can be manipulated to test specific aspects of three major exchange formulations: Blau's social exchange formulation; Emerson's power-dependence formulation; and Berger's status-value formulation. First, these formulations are outlined and an integrated model presented. Second, the Reciprocity game model is described. Third, the operationalization of the theoretical model in the simulation game is specified. Last, the way in which Reciprocity may be used to study power in family relationships is illustrated in terms of a husband-wife and a parent-teen version of the simulation game. (Author)

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SIMULATION OF DYADIC EXCHANGE: PROPOSAL OF A METHOD TO STUDY POWER IN FAMILY RELATIONSHIPS

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SIMULATION OF DYADIC EXCHANGE: PROPOSAL OF A METHOD TO STUDY POWER IN FAMILY RELATIONSHIPS

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INTRODUCTION

The power structure of the family has been a major focus of sociological research over the last decade. Yet, approaches to the dynamics of power emergence in families continue to be both conceptually and methodologically inadequate (cf. Safilios-Rothschild, 1970; Broderick, 1971; Sprey,1972). To remedy this situation, two developments are needed: (1) research designs that allow for the controlled observation and measurement of the interactive components underlying the multidimensional concept of power; and (2) a conceptual and ultimately theoretical framework that includes all potentially relevant variables, both structural and social psychological. Impetus for the research proposed in this paper stems from the potential offered by social simulation gaming and model building to serve both of these purposes.

"Reciprocity" is a social simulation game (developed and copyrighted by the writer in 1970) which is based on the principles of social exchange and power (Emerson, 1962; Blau, 1964; Berger and Fiske, 1970). The game can be utilized to simulate a variety of both intra-familial (e.g., pre-marital; marital; parent-offspring) and extra-familial (e.g., professional-client; black-white) social relationships. Since its inception, we have utilized the game as an experimental method with over 700 subjects (primarily students). The potency of "Reciprocity" as a research tool has been amply demonstrated by its ability to "shape" subjects' behavior toward the use of "fair exchange" strategies for resolving interpersonal conflicts (cf. Osmond and Martin, 1974; Martin and Osmond, 1975).

Rationale for Simulation Approach

Although yet to be widely utilized by sociologists of the family, simulation games have a number of advantages over traditional methods of family research (e.g., survey research, with interviews or structured questionnaires, entails problems of recall and "social desirability" response bias; experimental games lack isomorphism with actual social processes; and natural observation or field research in actual homes is hampered by access problems, investigator bias, and ethical issues regarding invasion of privacy). These advantages stem primarily from the requirement that social simulation games consist of an operating model constructed in terms of a theoretical model which simultaneously incorporates substantive content (e.g., conflict management in families; power-dependence relations between husband and wife or parents and children).

Construction of a simulation game involves, therefore, abstraction not only of the social structural relationships of interest but also the dynamic/process relationships as well (cf. Verba, 1964:491). Moreover, creation of a simulation game requires a stringent development and exercise of the assumptions of a theory (cf. Coplin, 1970). The result is a method which can be used both to refine theory (and/or to evaluate the relevance of competing theories) and to test hypotheses about social behavior in a particular substantive environment (Coleman, 1968; Raser, 1969; Coplin, 1970; Bell, 1975). Finally, a simulation gaming approach permits multiple methods of data collection. One is not forced to argue "observation versus interview" but can employ both methods along with the game itself. Data from multiple sources may then be used as validity checks against one another (cf. Campbell and Fiske, 1959).

Background

While a number of sociologists have noted the utility of social exchange theory for studying family power relations, few have utilized any dynamic technique to study such a process model. Moreover, the traditional equation of family power with decision-making outcomes appears to have blinded family sociologists to pertinent social psychological research on the topic of exchange/power relations. Interestingly, in social psychological experiments, conflict is often generated in order to study the subsequent exchange processes which are then observed with regard to the nature of the power outcomes.

The proposed use of the RECIPROCITY simulation game to study family power relations was spurred not only by the use of laboratory games to investigate exchange/power relations but also by the theoretical bases of these experiments (cf. Burgess and Nielsen, 1974; Cook, 1975). Where we had originally utilized the RECIPROCITY game to test Blau's (1964) formulation of the establishment of exchange relations, we now propose that the simulation can also be manipulated to test specific aspects of the power-dependence formulation of Emerson (1962, 1964) and the status-value formulation of Berger et al. (1972). We contend that these three theoretical formulations constitute sequential aspects of the dynamics of power relations. Although there is agreement that power is established via a social exchange process, only a dynamic method of the type proposed here allows for the operation of all three phases of this sequence in a genuinely social exchange setting. Most pertinent to family sociologists, the substantive content of the simulation is in terms of multivariable aspects of family power relations.

First, we outline the three theoretical formulations and propose an integrated model. Second, we describe the RECIPROCITY game model. Third, we specify how the theoretical model is operationalized in the simulation game. Finally, we illustrate how RECIPROCITY may be used to study power in family relationships.

THEORETICAL MODEL

In developing the theoretical model on which the RECIPROCITY simulation is based, we draw upon three major formulations of the dynamics of power relations. These are: (1) the social exchange formulation (following Blau, 1964); (2) the power-dependence formulation (following Emerson 1962, 1969; also Thibaut and Kelly, 1959; and Adams, 1965); and (3) the status-value formulation (following Berger, et al., 1972).

To our knowledge these three formulations have yet to be operationalized and tested as sequential phases of an overall dynamic process. We propose that the RECIPROCITY model allows such a test and consequently for a more integrated conceptualization of power relations. Moreover, we claim that only a dynamic method of the type proposed here can put all three phases of the sequence into operation in a genuinely social (as opposed to mechanical or economic) exchange setting.

Power is defined here as ". . . an ability or potential (which may or may not be acted upon) to influence others, i.e., to withhold rewards from and/or to apply punishment to others" (Emerson, 1964: 297). Blau (1964:117) stresses that this ability must be "recurrent," i.e., it does not refer to a single instance of influence. These conceptualizations are basically compatible for all three of the above formulations. Moreover, power is viewed primarily as a social system property rather than a property of individuals. Thus, a person's roles and statuses are basic aspects of her/his capacity to influence other (Rogers, 1974:1423). In order to study power then one must be concerned with the social context within which power relations take place, plus one must assume a dynamic perspective in order to analyze how changes in a person's social roles may 'alter the amount of power at the individual's disposal" (cf. Blau, 1964; Rodman, 1970; Rogers, 1974). Finally, if power is defined as an ability, resources are the primary determinants of that ability (in agreement with the three formulations above). Resources are broadly defined in terms of any attributes, circumstances, possessions, etc. that increase one's ability to influence. In our theoretical model we recognize not only individual (or personal) resources but also the rights and privileges which constitute resources associated with certain roles in a social system.

In essence, the three theoretical formulations may be diagrammed in a general skeletal model.

INPUTS——————— MEDIATORS——————— OUTCOMES

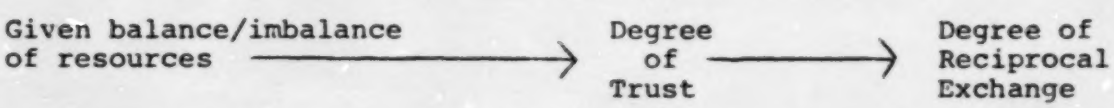
This model is assumed to be dynamic, i.e., changing. It is assumed that action takes place within a larger social context. "Inputs" represent partner characteristics at a given point in time. "Mediators" are in terms of the interactional situation which result in "Outcomes" that have to do with "rewards."

The three theoretical formulations are outlined in terms of the basic model as follows.

(1) Social Exchange. Blau's (1964) theory is most heuristic in outlining the emergent characteristics in the establishment of exchange-power relations. According to Blau, the factor of "unspecified obligations" distinguishes social from economic exchange. Social exchange involves the principle that when one person does another a service, though there is a general expectation of some future return, its exact nature is not stipulated in advance. Blau stresses the importance of three major variables in the process of establishing exchange: (1) balance; (2) degree of trust in the relationship; and (3) degree of reciprocal outcomes.

In brief, balance refers to resources. If one partner in a relationship always has the advantage in terms of resources, then that partner will be the least committed and the relationship structure will tend to be imbalanced. Trust is conceptualized as an intervening variable. A consequence of the unspecified nature of obligations inherent in social exchange is the necessity for trust in interpersonal transactions (Blau, 1964:94). Underlying Blau's theory is the assumption that the more balanced the commitments of the two parties, the greater the trust that will develop between them; and the greater this trust, the greater the likelihood of reciprocal or fair exchange behavior. Thus, the outcome variable is degree of reciprocal exchange. To Blau, the establishment of exchange relations involves making "investments" that constitute commitments to the partner. "Since social exchange requires trusting others to reciprocate, the initial problem is to prove oneself trustworthy" (Blau, 1964:98). In essence, Blau hypothesizes that there must be parity in initial reward outcomes for exchange relations to continue. However, if resources are imbalanced, this early parity in rewards leads to a greater commitment to and dependence on the relationship by the partner with fewer relative resources. Blau asserts that the source of power is one-sided dependence. Unless the more dependent partner can furnish further benefits that make for interdependence, such unilateral dependence obligates her/him to comply to the other's will, i.e., the outcome is one of power relations.

In sum, Blau's model can be diagrammed as follows:



(2) Power-Dependence. Emerson's focus is on the consequences of the use of power. Power, in essence, is already established in this model and interest lies in the manner in which it is used (by o) and in the alternative strategies which this use calls forth in the partner (p). These "alternatives" can be conceptualized as follows: (1) person (p) may provide other (o) with a service which o needs such that o is willing, in return, to provide a service to p; (2) p may obtain the needed service from someone other than o; (3) p may coerce o to provide the needed service to p; or (4) p may resign self to doing without the needed service. If p is unable or unwilling to utilize one or more of these

alternatives, then p has no choice but to comply with o's wishes. In this event, then, the supply of a needed service by o to p inevitably results in the maintenence of a power relation.

The outcome of this interaction between "o" and "p" is the degree of equitable exchange. Equity is defined as the relationship between (or ratio of) one's inputs and outcomes relative to that of one's partner.

Emerson's model can be diagrammed as follows:

Given Unequal Resources → Use of Power by o and of Alternative(s) by p → Degree of Equitable Exchange

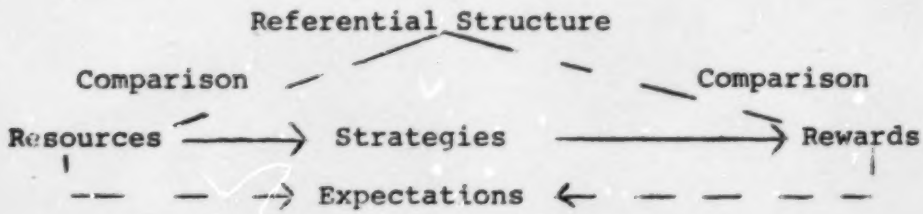
(3) Status-Value. The formulation by Berger, Zelditch, Anderson, and Cohen (1972) appears to offer a much needed link between the establishment and the consequences of power relations by examining the expectation process through which the ability to exercise power is recognized. Although these authors are likewise concerned with "balance," their focus is more on how and whether such balance/imbalance is perceived by the partners as equitable or inequitable. We are concerned with three basic elements of this formulation: (1) status significance of inputs or resources; (2) referential structure; and (3) expectations.

The assumption is that in an exchange relationship rewards are allocated on the bases of a person's resources. These resources, which can be both characteristics of the person and characteristics of the person's goals, have status significance. There is a referential structure that defines to each person what may be considered "fair exchange." This referential structure is both general (i.e., how others with similar resources are/have been rewarded) and local (i.e., how the partner in the immediate exchange relationship is rewarded). A comparison process with the referential structure determines what rewards each partner can expect. Whether or not these expectations are met determines how partners will interact in subsequent exchange relations. The model can be diagrammed as follows.

Assessing Comparative Value of Resources → Comparison of Rewards with Referential Structure → Expectations for Outcomes

The contribution of the RECIPROCITY model is that it allows the researcher to construct a dynamic situation in which each of the above process models can be studied alone and/or in the sequence that is implied by their focus: (1) the establishment of exchange/power relations; (2) the recognition (expectations for outcomes) and evaluation of power relations; and (3) the consequences of the use of power. The elemental model can be diagrammed as follows:*

*Solid lines represent the behavioral sequence; dashed lines represent a feedback loop.



Given an interpersonal situation in which there are (at least some) conflicts of interest, the model details the following process. The partners possess resources (in terms of statuses and roles plus goals) which influence their strategies with regard to resolving the conflict. The use of these strategies (which are interdependent) influences the type of reward outcome of the exchange process (i.e., the actual degree of reciprocal exchange). The perception of this reward outcome results in a feedback loop in which rewards are compared, in terms of resources, to a referential structure (both general and local). Such feedback generates expectations regarding the equity of the reward outcome. The sequence then would predictably be repeated until such conditions prevailed, for example, as absence of conflict on the issue, accumulated knowledge of the partner that would negate bargaining, dissolution of the partnership. In subsequent phases, the model suggests that expectations can modify strategies and change the reward outcome, thus leading to further assessment of resources versus rewards, etc.

GAME MODEL

"Reciprocity" is a non-zero-sum dyadic (two-party) interactive game which interates over (at least) three rounds and which can be played in one of four "family content" versions. Depending on the roles and issues of interest, these versions include: (1) premarital (or dating) content; (2) marital content; (3) familial (e.g., parent-child) content; and (4) clinical (or professional-client) content. Roles may be assigned randomly or according to pre-determined criteria (e.g., sex, age, attitudes, etc.) or they may reflect the players' actual roles in real-life (e.g., married couple). Game play progresses in six phases involving a total of seventeen steps. Figure 1 presents a flow-chart of the game process.

Figure 1 about here

A corresponding outline of the steps portrayed in the flow-chart within the major six phases of the game is as follows. The arabic numbers correspond to steps in the flow-chart.

I. SELECTION OF PARTNERS

1. Players draw profile cards which describe various characteristics of the content roles being simulated (e.g., male-date and female-date)

OR

Players draw from a deck of regular playing cards (e.g., red suits for males and black suits for females)

2. Players match profile characteristics to locate playing partners

OR

Players match numbers on regular playing cards (e.g., 3 of diamonds with 3 of clubs)

Players post names (first name only) on the blackboard.

II. ISSUE PHASE

3. Partners discuss a list of ten to fifteen potential conflict issues relevant to their dyadic relationship.

4. Each couple selects five issues about which they disagree (or conflict) most.

5. Each individual privately ranks (from 1 = most important to 5 = least important) the five conflict issues in terms of their importance to her/him in the dyadic relationship.

III. DESIGNATION OF ROLES AND GOALS

Roles: "behaver" and "demander/checker"

Goals: individual or team or both;
"attraction" points
competition is with players in the same content role and not between partners

IV. CONFLICT/NEGOTIATION PHASE

6. Partners discuss alternatives to each issue and attempt to reach an agreement as to which alternative (four alternatives are given to each issue) the "behaver" will choose to represent her/his actual behavior in the relationship.

7. and 8. If partners do not (are unable to) reach an agreement in the time allowed for each issue, the "demander' insists that the "behaver" choose a particular alternative.

V. BEHAVIOR/DECISION PHASE

9. The "behaver" then selects (in private) one of the four behavioral alternatives for each of the five conflict issues. These represent the action s/he has taken for the round.

10. One card per issue, on which the selected behavioral alternative is printed, is placed face down by the "behaver" in front of the "demander."

11.-14 The "demander/checker" decides whether to check for violations of prior agreements and/or demands (on up to two issues only). If checking is done and if the behaver did violate, the "demander/checker" must penalize the "behaver" (for a maximum of 100 points per violation, up to two).

VI. SCORING-FEEDBACK PHASE

15. and 16. Each player individually calculates his or her score and posts these for all players to see.

17. Winners are declared (depending on the competitive goals articulated at the first of the game) in terms of highest total points scored. Steps 6-16 are repeated in each round of play.

The first two phases of RECIPROCITY are self-explanatory. After partners are matched and seated together, each couple is given a list of from ten to fifteen issues to discuss. Different sets of issues have been developed for each content version of the game. Additionally, in order to reflect their specific relationship, each dyad is free to change, add to, or delete from the list. Rankings of the five chosen issues are kept private to simulate each individual's personal values. The necessity for privacy on value-ranks is based on the assumption that values are brought into exchange relations implicitly rather than explicitly and over specific conflict issues rather than in general. For "role play" versions of the game (i.e., when experimental rather than real couples are the subjects), the players are instructed as to the "stage" in their relationship (i.e., whether first date or third, etc.). This developmental stage may change over the rounds of play.

In the experimental manipulation of the dyadic interaction process, the designation of roles and goals (phase three of the game) is most critical. There are two action roles for the players in each team: a "behaver" role and a "demander/checker" role. Each of these roles entails unique "resources" in the form of exclusive rights to perform certain actions in the game.

The player of the behaver role has the right on any given round to select the behavioral alternative that s/he wants for each of the five conflict issues. Further, her/his choices represent the "decisions" for the team and are used to calculate the scores of both team members. In short, the alternatives which the behaver actually chooses will greatly determine scores for both partners for that round. The demander/checker, on the other hand, is able to influence the behaver by having the right to demand or insist that the behaver select certain alternatives (on one or all of the conflict issues) and to penalize the behaver if s/he violates agreements or demands. In short, the demander can insist on having her/his way on all issues; plus, the demander can "check on" the behaver's choices on two issues and can subtract points from the behaver's score if the latter is caught in "violation" of a prior agreement or demand.

The two action roles in the game are interdependent. That is actions by one team member have consequences for both members. However, the role of the behaver is the more "powerful." This tends to be true because the decisions made by the behaver set the maximum limits for points achieved while the demander/checker can depress the behaver's score by only a comparatively small amount.

In the allocation of these roles, the experimenter has a number of options. (1) One partner may play the role of behaver and the other the role of demander/checker for the entire game. (2) Roles may be determined by chance (coin toss) at the beginning of each round. (3) Roles may be determined by the couple at the beginning of each round. Various permutations of these options are obvious. For theoretical reasons, we have limited our experiments to option (1) which we call the "imbalanced" condition and option (2), the "balanced" condition. Another important variable is whether or not the "behaver" role is delegated to the player whose role in "real life" often incorporates greater resources (e.g., the male role in premarital relations).

Players are instructed that:

> "The goal of the game is to learn to bargain effectively and cooperatively with your partner. At the same time, however, you should try to secure the best bargain you can possibly make with your partner in line with your own values and needs in the relationship."

Instructions for "specific goals" are worded in terms of the content version of the game. Because the experimental goal is to study how and to what degree the game's structure shapes optimal (or "fair") exchange behavior, subjects are instructed explicitly to compete for points ("utilities" or "satisfactions" or "attraction") only with players of their same content roles (e.g., husbands against husbands). They are instructed not to compete with their partners (e.g., husbands do not compete with wives). At the end of the simulation (following the example above), a husband-winner, a wife-winner, and a couple winner are selected on the basis of maximum number of points. Whether individual scores, or team scores, or individual and team scores are stressed by the experimenter and posted on the blackboard is another variable in the interaction process. This variable may be manipulated to create various "feedback" effects.

Phases four and five of RECIPROCITY proceed as outlined in Figure 1. In stage six, the method of scoring deserves special attention. The scoring system, as shown in Table 1, is relatively complex (compared to the "payoff matrices" in such experimental games as "Prisoners' Dilemma") because it is designed to reflect precisely the degree to which optimal exchange strategies have been utilized (see Osmond, 1972). Optimal exchange is defined as person (p) allowing other (o) to have his/her way when o has evaluated an issue as "high" (ranks 1 or 2) in importance in return for o allowing p to have his/her way when p ranks the issue "high."

Table 1.--Utilities of Decision Options by Rank in Importance to each Partner

Decision Options		Partner A Issue Ranks 1	2	3	4	5	Partner B Issue Ranks 1	2	3	4	5
A has own way all of the time	(a)	150	140	130	120	110	0	20	40	60	80
A has own way most of the time	(b)	125	120	115	110	105	75	80	85	90	95
B has own way most of the time	(c)	75	80	85	90	95	125	120	115	110	105
B has own way all of the time	(d)	0	20	40	60	80	150	140	130	120	110

Strategies to effect optimal exchange must be learned by the players. They are not allowed to see each other's score grids. Again, as with the value-ranks which are kept private, the purpose is to increase the realism of the simulation and to render the game more isomorphic with the theoretical model.

The RECIPROCITY game requires approximately two hours to play in its two-person form. With a person-computer version (now in progress) this time is reduced to approximately thirty minutes. For best results, the experimenter should allow an equal amount of time (at the least) for the evaluation and debriefing session which follows game play.

OPERATIONALIZATION OF THEORETICAL MODEL

The Social Exchange Formulation

RECIPROCITY can be operated to test Blau's formulation of the initial processes in establishing social exchange. On a theoretical level, the basic steps in the process are as follows:

Our operationalization is in terms of the two-person, "role play," version of the game where the partners are strangers. The simulation game allows the experimenter to manipulate "balance in resources" and, consequently, to measure partner game strategies which indicate "degree of trust" and partners' reward outcomes which indicate "degree of reciprocal exchange." More specifically, the variables and empirical referents are as follows.

Resources. The major resource of each partner is the game role assigned to her/him: behaver versus demander/checker. A greater degree of balance can be achieved by allowing role assignment to vary by chance over rounds, or a greater degree of imbalance is achieved by restricting assignment of the behaver role to the player of only one content role (e.g., the husband in the marital version of the game). Another type of resource is each partner's goal in the simulation. We attempt to hold goals constant by instructing subjects to compete only with players of the same content role and by emphasizing team goals. Additionally, players bring other resources into the simulation in terms of their personal or individual characteristics: e.g., attractiveness, charm, or their actual roles, statuses, and goals. The experimenter can attempt to nullify such characteristics by use of the "profile cards" or can collect data (by observation and/or questionnaire) on individual characteristics for later statistical analysis.

Trust. Blau's dimension of "unspecified obligations" is operationalized by partners' not revealing either their value-ranks or related score grids. The empirical referent of trust is amount of "violating" and/or "checking" behavior which occurs during game play.

Reciprocal Exchange. The reward outcome is degree of reciprocal exchange. The scoring system of the game is constructed so that partner's can exchange "services." That is, the payoff is greater for the team if each partner compromises on issues that are of highest (rank) importance to the other. Thus, according to Blau's theory, if resources are "balanced" we expect greater "trust" between partners, and a greater degree of "fair exchange" outcome. The empirical referents of the outcome of this process are the extent to which team scores increase over rounds and the extent to which discrepancies between partner scores decrease over rounds of play.

The Status-Value Formulation

With the RECIPROCITY game, the investigator can also analyze the nature of the feedback process at one or more points during the exchange relationship. The theoretical prediction is:

Assessment of Relative Resources	———	Comparison of Rewards with Referential Structure	———→	Expectations for Outcome

Obviously, this is a subjective process. Thus, while we can make inferences from the data that the process occurs, we recommend that a questionnaire be used as a validity check. The process should be examined after the first and/or the second round of game play. Variables are operationalized as follows.

Assessment of Relative Resources. The initial game instructions place equal emphasis on both the "behaver" and "demander" roles. Further, the subjects are instructed that "behaver" and

"demander" are not in competition. Regardless of whether they actually are or are not operating in an imbalanced resource condition, we have observed that the partners in the first few rounds act as if resources are balanced. In other words they assume that each game role has potential "equalizing" power.

Referential Structure. Through the posting of individual and team scores an explicit referential structure, both "general" and "local," is offered to the players at the end of each round. From this structure, players can recognize that, for example, most of the male players have higher scores than most of the female players do (or vice versa). Such a result, of course, would be expected to occur primarily under an imbalanced resource condition. Further, the experimenter can manipulate the imbalance so that the referential structure corresponds to the "real-life" normative structure, i.e., "traditionally" teens, girls, wives should not score higher than their complements (parents, boys, husbands) in these roles.

Expectations. Expectations with regard to subsequent rewards arise from the players' comparisons of their scores with the referential structure. That is, from the referential structure, players learn which alternatives are available to them, their relative power to produce rewards, and what the other should/could do to create equity of outcomes. Whether or not this learning comes (in part) from study of the behaver or demander score grids can be answered more satisfactorily from the person-computer version of the game where the computer will do all of the scoring.

The Power-Dependence Formulation

Assuming an imbalanced resource condition, the Input in the power dependence model is determined by the Outcome expectations of the status-value model.

Perception of Inequality of Resources → Alternative Strategies → Degree of Equitable Exchange

Perception of Inequality of Resources. The feedback process has allowed players to learn their resources in the game. The theory predicts a concurrent reassessment of these game resources with individual resources, e.g., "profile card" characteristics. Again this subjective process can only be ascertained through observation, questionnaire, taped interview, etc.

Alternative Strategies. The basic game model includes two of Emerson's four "alternative strategies": (1) resources to supply (or not supply) other with a service that other wants; (2) ability to coerce other to obtain a service. The experimenter may investigate the degree to which the "behaver" resorts to the use of raw power, when s/he does this, and under what conditions. One may also ask the same questions with regard to the "demander's" use of coercion and punishment. A third alternative, from Emerson, may also be incorporated into the simulation: p may obtain the

needed service from someone other than o. Here one could allow p, after the second round, to choose a different partner on the bases of explicit goals: e.g., more attractive profile card; better game scores. The empirical referents of the two alternatives as they appear in the game model are: (1) the frequency with which the "behaver" violates agreements/demands and (2) the frequency with which the "demander" checks on the "behaver's" choices.

Degree of Equitable Exchange. As Emerson underscores, reward outcomes may be perceived as equitable without there being a 1:1 reciprocity in the magnitude of what is exchanged. Under the imbalanced condition of the game we would expect degree of equitable exchange to be reflected in the degree to which the "behaver's" score exceeds the score of the "demander." In the imbalanced condition, the overall pattern over three rounds of play should reflect an increase in discrepancy of the partners' scores in each dyad. Perceptions of equitable (or inequitable) exchange may be measured by: (1) behavior, i.e., attempts to redress perceived inequity; and/or (2) questionnaire.

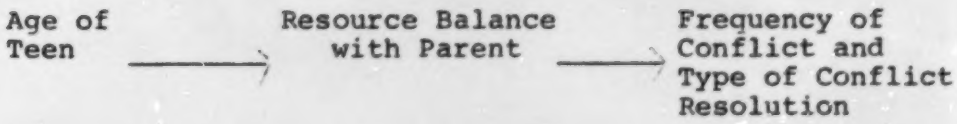
APPLICATION TO FAMILY RELATIONS

The RECIPROCITY game may be used to explore a large number of variables and consequent hypotheses. The experimenter may vary such parameters as content, roles, goals, type of partners, stages in partners relationship, type of feedback, rules of communication, number of iterations, etc. Data from game play offer a wealth of information: e.g., types of issues chosen, rank values, amount of persuasion/coercion in the decision making process, frequency of demands and violations, scores per round and total scores, etc. The variety of relevant extra-game data (collected by questionnaire, tapes, etc.) is also great: e.g., individual characteristics such as statuses, attitudes, and personality traits may be examined in relation to specific aspects of game play.

Research questions in the area of family power which can be addressed by use of the RECIPROCITY simulation are described below. Since results from the premarital version are reported elsewhere (Martin and Osmond, 1975), we draw our examples form the parental and marital versions of the game.

Parental

Patent-child interaction comprises a classic example of family power relations, a topic which has engaged sociologists for decades. One of the more heuristic recent works, that of Edwards and Brauburger (1973), approaches the topic from an exchange theoretical perspective. These researchers conclude that age of teen is associated with frequency of parent-teen conflict and type of conflict resolution. They explain this association in terms of the emergence of a greater balance of resources (of teen vis-a-vis parent) as the teen grows older. In diagram form their model appears to be as follows.



Utilizing Edwards and Brauburger's report as our springboard, we illustrate how the RECIPROCITY simulation technique can be applied to elaborate on their model. First, the type of power strategies utilized by parents is a variable which may change over time and which may produce variable degrees of intensity (as well as frequency) of parent-teen conflict (cf. Coles, Alexander, and Schiavo, 1974, report on types of parental roles). Second, a curvilinear association is hypothesized between age of teen and frequency of parent-teen conflict, i.e., infrequent conflict in (pre- and) early teen and late-teen ages with a peak in the mid-teen years. Third, two major variables that predictably interact with the above associations to influence frequency of conflict are sex of teen and sex match of the parent and teen.

With the Parent-Teen version of the RECIPROCITY game one can begin to explicate this hypothetical process. For example, the degree of conflict intensity as well as the sheer amount of conflict between parent and teen can be explored. One can determine the issues which produce parent-teen conflict and assess whether these issues (and/or their importance) change with the age of the teen. Further, to as fine a degree as desired, the age range during which parent-teen conflict appears to "peak" can be examined. Additional questions might involve degree of change in strategies over time, influence of various referential structures (e.g., family of orientation of the parent; peers of the teen), etc.

In related experiments, "real" parent-teen dyads can be investigated, for example, to validate the "role-play" version of the game and/or to explore actual parent-teen relationships. In person-computer play of the game, furthermore, we can examine the manner in which individual characteristics of the parent and of the teen affect their mutual interaction. For example, if the computer is programmed to utilize consistently fair-exchange strategies, the researcher can observe whether the teen persists in exhibiting uncompromising behavior. Ramifications on each of the above questions, of course, can be documented in ways too lengthy for the present paper.

Marital

The topic of power in marital relations is undoubtedly the most controversial issue in family sociology today. The RECIPROCITY technique can, we believe, provide a much needed impetus toward the reconceptualization and measurement of the dynamics of exchange and power in this area.

Two classic studies serve as a take-off point. Blood and Wolfe (1960) found support for a model in which relative resources of spouses influence decision-making which, in turn, reflects which spouse has the greater "power" in the relationship. Rodman

(1967) extended this model, on the basis of exchange theory, to include the influence of the prevailing ideology with regard to the degree of equality that should exist between husband and wife. One can observe that the interrelationship of the variables predicted by the above researchers is both captured in its entirety and extended in several ways in our general model (see p. 6).

To our knowledge, prior research has generally taken the variable of "resources" as given: i.e., spouses are questioned regarding their statuses, goals, etc. which are then assumed to constitute resources in the marital relationship. With the RECIPROCITY simulation such a basic input into the model can be manipulated or varied. Moreover, the referential structure, alternative strategies in the decision-making process, and reward outcomes may likewise be varied. The following are a sample of questions which can be addressed with the RECIPROCITY game.

When relative resources of the spouses are varied, what are the consequences for marital conflict and decision-making strategies? For example, rather than the traditional assumption that wife's employment increases her relative resources, we can structure the simulation so that wife is employed with an income of less/equal/more than her husband and investigate the consequences of this on interspousal interaction. Additionally, the more "powerful" game role of "behaver" might be assigned to the wife and the consequent distribution of reward outcomes can be assessed. For a second example, we can ask to what degree and in what manner socio-emotional resources influence marital politics, such as decision-making, conflict resolution, type of exchange, etc. (cf. Safilios-Rothschild, 1976, who suggests that "degree of commitment" constitutes such a resource). Third, the manner in which variations in resources affect other variables such as type of conflict issues, intensity of conflict, and perception of equity can be explored. For example, do both partners perceive equity when rewards are unequal because of imbalanced resources? Given balance in game resources, how (if at all) do spouses employ alternative strategies? What are the relative reward outcomes as compared to results from the imbalanced condition? Given a third alternative strategy, that of allowing "spouses" to exchange partners (as suggested by Heer, 1963), under what conditions would such an alternative be chosen and by whom?

Finally, we can begin to study change, a crucial aspect of marital power relations. We can vary the stage in the marital relationship (either by "role play" or by enlisting "real" spouses who are at various stages) and investigate: (1) how power relations emerge; (2) whether they stabilize; and (3) whether they peak and/or decline over time. A myriad of specific variables associated with length of marriage can be explored. For example, what are the effects of having children on marital exchange/power relations?; how does time affect conflict topics, conflict intensity?; is there a principle of "diminishing interest."; etc.

Finally, with the person-computer version of RECIPROCITY (currently under development), one can examine the effects of individual

partner characteristics on the process of marital "politics." We are interested not only in how each partner's personal attitudes, values, etc. influence the interaction process, but also in the manner by which person behavior varies when playing with a computerized partner whose behavior can be regulated and standardized.

CONCLUSION

There are three potential uses for the RECIPROCITY simulation game: (1) theory testing; (2) research; and (3) teaching. These three uses, of course, are not mutually exclusive. There are differences, however, in terms of emphasis on specific parameters.

In operating RECIPROCITY to test basic theoretical propositions we are investigating if, and to what degree, the theoretical model predicts behavior. For example, we have studied how the simulation game structure actually "shapes" subjects' behavior toward a greater use of reciprocal exchange strategies.

As a research method the RECIPROCITY technique serves as an "unobtrusive measure" for the experimenter interested in studying basic aspects of the interaction processes that constitute exchange/power relations. The simulation game, for example, can be used to examine these processes in "normal" versus "abnormal" families, or in marriages that are at different stages in the family life cycle. A major advantage of this method, as implied in the above examples, is that it offers the opportunity of relatively "controlled" replications for comparative analyses: e.g., spousal interaction across social classes, across regions of the country, and/or cross-nationally.

Third, the RECIPROCITY method may be adapted to help subjects understand the basic processes of exchange and power in social relations, i.e., in teaching or counseling. When the technique is used in this manner, the emphasis shifts to the subjects per se. Much greater time is given to "debriefing" so that insights may emerge and be explored.

Finally, the RECIPROCITY simulation gaming technique is intended as a complement of, rather than a substitute for, traditional as well as innovatibe research methods. Past research in the area of family power relationships dictates that we apply all of our "methodological imagination" to gain better understanding of the basic dimensions of this process.

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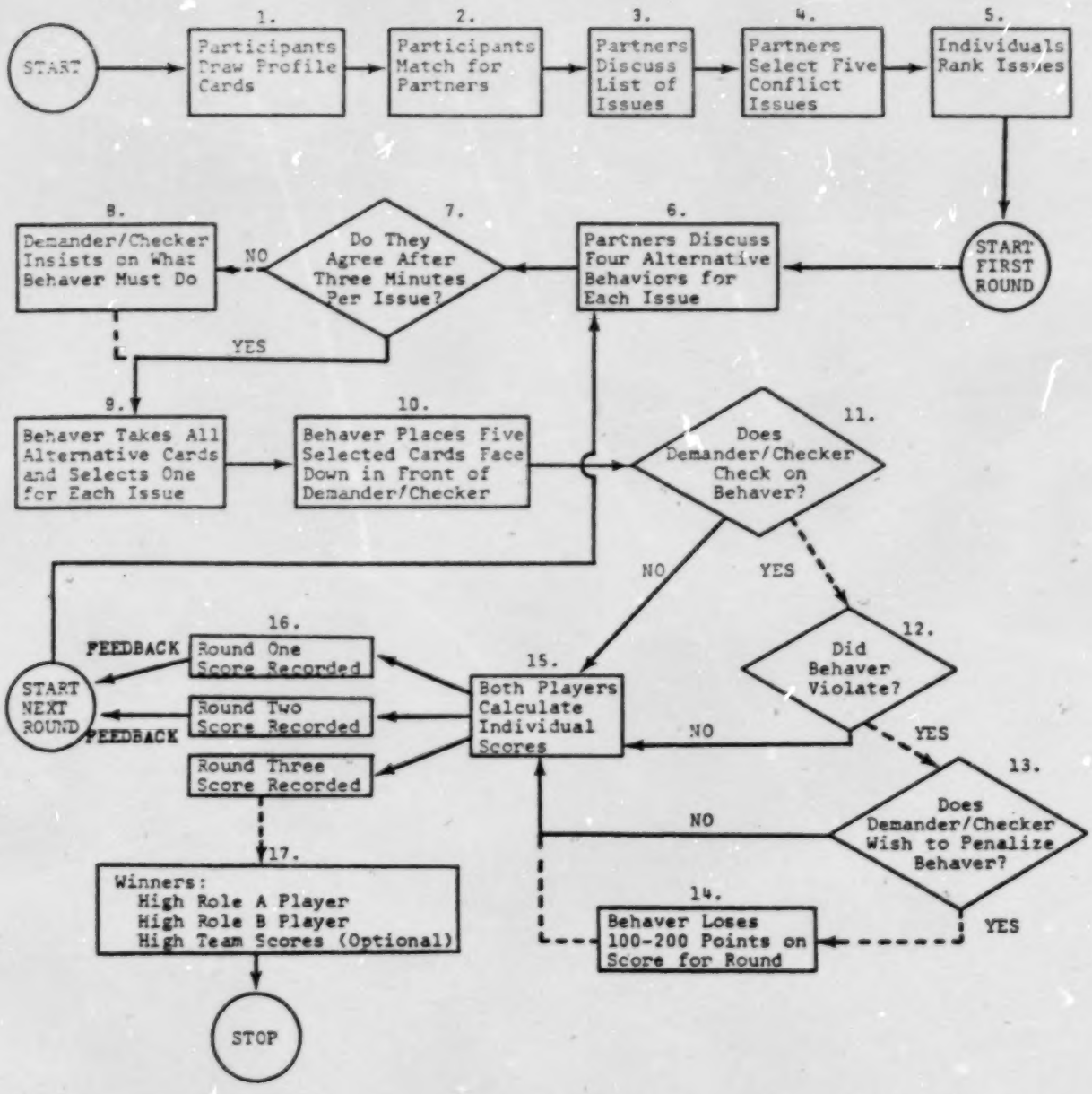

Fig. 1.--Flow-chart of the two-person game version of the simulation model (The Reciprocity Game).